

**REMARKS**

Claims 1-43 are pending in this application. Claims 1, 34, 39, 41, and 43 have been amended in the expectation that the amendments will place this application in condition for allowance. New Figures 1-4 have been added, the Specification has been amended to add a Brief Description of each figure so added, the Specification has been amended to refer to the new figures and to correct grammatical errors, and the Specification has been amended to modify the Title. The amendments do not introduce new matter within the meaning of 35 U.S.C. §132. Basis for the amendments to the Specification and claims is found on page 3, line 27 to page 6, line 11, and in the documents incorporated by reference therein; in claims 1-43 as originally filed; and elsewhere throughout the specification and claims.

In particular, support for the amendment "customized for a predetermined user" is found in the specification, for example, on page 1, lines 21-22 ("a virtual image of teeth of the individual playing the game").

Further, support for the addition of Figure 4, relating to virtual dental tools, is found in the general knowledge in the art. It is well known that many, if not all, computer programs and games simulate reality. Similarly, the use of "virtual tools" specific to the program or game is also well known; see the following U.S.

Patents:

6,624,832, relating to: Methods, apparatus and computer program products for providing user input to an application using a contact-sensitive surface.

6,612,004, relating to: Complex machining machine tool.

6,603,463, relating to: Method and an apparatus for electronically creating art.

6,597,464, relating to: Method and device for testing a cutting-edge geometry of a rotatably drivable tool.

6,565,497, relating to: Complex machining machine tool.

6,552,722, relating to: Systems and methods for sculpting virtual objects in a haptic virtual reality environment.

6,536,317, relating to: Complex machining machine tool.

6,502,487, relating to: Method of machining workpiece with complex tool.

6,421,048, relating to: Systems and methods for interacting with virtual objects in a haptic virtual reality environment.

6,356,800, relating to: Methods and systems for the visualization of a control program of a machine tool.

6,331,152, relating to: Three dimension body movement device.

6,215,498, relating to: Virtual command post.

6,191,796, relating to: Method and apparatus for generating and interfacing with rigid and deformable surfaces in a haptic

virtual reality environment.

6,190,320, relating to: Method for the processing of medical ultrasound images of bony structures, and method and device for computer-assisted surgery.

5,802,353, relating to: Haptic computer modeling system.

5,446,834, relating to: Method and apparatus for high resolution virtual reality systems using head tracked display.

5,106,290, relating to: Assembly data model tool system.

5,033,014, relating to: Integrated manufacturing system.

5,023,800, relating to: Assembly data model system.

4,956,764, relating to: Assembly data model tool system.

4,945,488, relating to: Integrated aircraft manufacturing system.

4,937,768, relating to: Integrated assembly system.

It is well known that a "virtual tool" is a computer-aided representation, on a screen, of a three-dimensional virtual tool which represents a real tool (see, e.g., U.S. Patent No. 6,190,320, relating to virtual medical tools). Further, dental tools such as a toothbrush, a tooth pick, dental floss, and a gum massaging aid are also well known.

Accordingly, entry of the amendments is respectfully requested.

Applicant takes this opportunity to thank the Examiner for the indication of allowable subject matter, recognizing the novelty and non-obviousness of the inventive subject matter described in claims 9, 13, 17, 25, and 29, conditioned upon the resolution of the rejections under 35 U.S.C. §112, second paragraph.

### **1. Amendments to the Specification**

Drawing Requirement. The Office Action states that the subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention, i.e., method steps of the play of the game; the virtual three-dimensional dental images; and virtual rules, tools, and components. The Examiner requires Applicant to furnish a drawing under 37 CFR 1.81, avoiding the introduction of new matter.

Applicant has furnished proposed new Figures 1-4 to illustrate the inventive subject matter; has amended the Specification to include a new section: Brief Description of the Drawings; and has amended the Specification to refer to the new figures and to correct grammatical errors. No new matter has been introduced in such drawings, the Brief Description thereof, or in the text of the application relating to the new drawings.

Applicant respectfully notes that "A specification need not describe that which is well known in the art." *In re Buchner*, 929

F.2d 660, 661, 18 U.S.P.Q.2d 1331, 1332 (Fed. Cir. 1991). Thus, the requirement for inclusion of a drawing depicting a virtual dental tool of well known objects such as a toothbrush, a tooth pick, dental floss, and a gum massaging aid is not necessary to an understanding of the inventive subject matter. Nevertheless, in order to advance prosecution, Applicant has proposed adding Figure 4 to show such virtual dental tools.

Title. The Office Action states that the title of the invention is not descriptive. The Examiner requires Applicant to provide a new title that is clearly indicative of the invention to which the claims are directed, with the suggestion of "Virtual Dental Game". Applicant has amended the Title as Suggested by the Examiner.

Accordingly, Applicant respectfully requests the Examiner to enter the amendments, approve the proposed new drawings, and reconsider and withdraw the drawing requirement and requirement to amend the Title.

## **2. Objections to Claims 1-29, 41, and 43**

The Office Action objects to claims 1-29, 41, and 43 for the following informalities: In claims 1, 41, and 43, the word "comprising" should follow the preamble.

Applicant has amended claims 1, 41, and 43 as suggested by the

Examiner. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the objection to the claims.

**3. Rejection of Claims 34, 39, and 43 under 35 U.S.C. § 112, second paragraph**

The Office Action rejects claims 34, 39, and 43 under 35 U.S.C. §112, second paragraph, for the following reasons:

In claim 34, the recited limitation "wherein said virtual three-dimensional dental image comprises substantially all teeth of at least one jaw" is repeating.

In claim 39, the recited phrase "said task" lacks antecedent basis.

In claim 43, the recited term "data carrier" is vague and indefinite since it is unclear whether the "data carrier" is a storage medium or a communication network.

Claim 34. Applicant thanks the Examiner for pointing out that claims 33 and 34 were of the same scope prior to amendment herein. Applicant has amended claim 34 to read "wherein said virtual three-dimensional dental image comprises substantially all teeth of both jaws."

Claim 39. Claim 30 reads, in pertinent part, "... (b) performing, in response to a user command, **one or more tasks** within a virtual environment to obtain a modified environment and displaying same..." (emphasis added). Applicant respectfully submits that singular form of the phrase "one or more tasks" provides antecedent basis for the use of the term "said task" in

claim 39.

However, in order to advance prosecution, Applicant has amended claim 39 to now read "...providing virtual tools or components for the user's selection for performing said one or more tasks," which clearly refers back to the antecedent "one or more tasks" in claim 30. Applicant has thus made a broadening amendment, and thanks the Examiner for pointing out that claim 39 need not be limited to performing only one task.

Claim 43. Applicant has amended claim 43 to read "A data carrier comprising: a computer-readable storage medium..." in order to make clear that the data carrier is a storage medium.

Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 34, 39, and 43.

#### **4. Rejection of Claims 41 and 43 under 35 U.S.C. §101**

The Office Action rejects claims 41 and 43 under 35 U.S.C. §101 as directed to non-statutory subject matter, for the following reasons:

The program of claim 41 and data carrier of claim 43 are non-statutory subject matter. Note that, the claims may be amended to be statutory by inserting language stating that the computer program is encoded on a computer-readable medium; and the data carrier should be amended to be computer-readable medium.

In order to advance prosecution, Applicant has amended claims 41 and 43 as suggested by the Examiner. Accordingly, Applicant

respectfully requests the Examiner to reconsider and withdraw this rejection.

**5. Rejection of Claims 1-8, 10-12, 14-16, 18-20, 22-24, 26-28, and 30-43 under 35 U.S.C. §103(a)**

The Office Action rejects claims 1-8, 10-12, 14-16, 18-20, 22-24, 26-28, and 30-43 under 35 U.S.C. §103(a) as being unpatentable over Chishti et al. (6,227,850) in view of Fabricant (4,231,181). As the basis for this rejection, the Office Action states:

Chishti et al. teaches a teeth viewing system, method, or a program having instructions embedded in a storage medium, in which a user, through a user interface, performs one or more tasks within a virtual environment, the system comprising: a virtual environment having a virtual three-dimensional dental image of at least one tooth of the user (Fig. 5); and said one or more tasks comprise improving a certain virtual condition associated with said at least one tooth; said virtual image comprises a plurality of teeth of at least a continuous section of teeth, substantially all teeth of at least one jaw, substantially all teeth of both the upper and lower jaws; the user can manipulate the mutual orientation of the two jaws; said condition is an inappropriate relative position or orientation of at least one tooth or of a jaw; and said one or more tasks comprise re-orientation of one or more teeth (Figs. 7-17); said one or more tasks are being performed by applying virtual rules, tools or components, corresponding to manner of dental, personal or orthodontic treatment of teeth or jaws; said condition a disorder in or lack of structural integrity of one or more teeth, and said one or more tasks comprise improving or fixing said disorder or lack of structural integrity; virtual rules comprise rules of movements of teeth or jaws corresponding to such in a real-life orthodontic treatment; extracting data from a storage medium, the data being representative of a virtual environment



comprising a virtual three-dimensional dental image of at least one tooth of the user, and displaying said virtual environment; and performing, in response to a user command, one or more tasks within a virtual environment to obtain a modified environment and displaying same; storing data representative of said modified environment in a storage medium; repeating said performing step a plurality of times; manipulating, in response to a user command, the relative position or orientation of at least one tooth or of a jaw. See 1:50-20:65 and Figures 1-20. Chishti et al. does not explicitly teach the limitations of the system, method, or program embedded in a storage medium is for a computer game; virtual tools or components comprise virtual personal mouth hygiene tools (claims 18-20, 40); virtual tools or components are virtual orthodontic components corresponding to real-life orthodontic components (claims 22-24, 40); virtual rules permitting elimination of virtual infectious agents from the virtual teeth (claims 26-28).

Fabricant, however, teaches a dental toy comprising simulated tools or components comprise simulated personal mouth hygiene tools (Fig. 1); simulated tools or components are simulated orthodontic components corresponding to real-life orthodontic components; simulated rules permitting elimination of simulated infectious agents from the simulated teeth (3:24-27). See also, columns 1-4 and Figures 1-7.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to combine Chishti et al.'s with a simulated dental toy of Fabricant to come up with a virtual dental game, especially with personalized feature, in order to attract more people other than regular game players, thus bring forth more profits from the game.

Applicant respectfully traverses this rejection. To establish a *prima facie* case, the PTO must satisfy three requirements. First, the prior art reference must teach or suggest all the limitations of the claims. *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Second, the prior art relied

upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Third, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). The Office Action meets none of these requirements and fails to establish a *prima facie* case of obviousness.

The Chishti reference discloses a method for performing tasks on a three-dimensional virtual model of an orthodontic patient's teeth, for the expressly stated purpose of the "computer-automated development of an orthodontic treatment plan and appliance" (column 1, lines 14-15). As amended, the claimed inventive subject matter relates to a game for the manipulation of a customized virtual model of the teeth of a *predetermined user himself or herself*. Disclosed purposes for the inventive game include user amusement, and education of the user about his or her orthodontic treatment and/or dental hygiene.

Contrary to the Office Action, Chishti, does not disclose a computer program which is personalized or customized for a

predetermined user, in which the user, himself or herself, performs tasks on a virtual model of his own teeth. The Fabricant reference also does not disclose a personalized or customized game. Thus, in the absence of any teaching or suggestion in the cited documents that the prior art treatment systems, designed for use in the computer-automated development of an orthodontic treatment plan and appliance for an orthodontic patient, would be useful for amusing and/or educating a dental patient directly and personally, the claims of the present application cannot be obvious over the cited documents. Accordingly, amended independent claims 1, 30, 41, 42, and 43, along with all claims dependent therefrom, are novel and inventive over the cited documents.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

#### **CONCLUSION**

Based upon the above remarks, the presently claimed subject matter is believed to be patentably distinguishable over the prior art of record. The Examiner is therefore respectfully requested to reconsider and withdraw the rejections of remaining claims 1-43 and allow all pending claims presented herein for reconsideration. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

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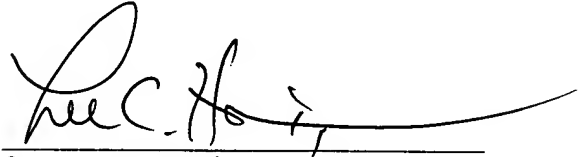
The Examiner is welcomed to telephone the undersigned attorney  
if she/he has any questions or comments.

Respectfully submitted,

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